WHAT IS CLAIMED IS:

1. A bone mill comprising a rotatable first cutter unit and a rotatable second cutter unit,

each cutter unit having (i) a plurality of disks disposed in parallel to one another at regular intervals, each disk being provided on the periphery thereof with a blade, and (ii) a shaft which connects the centers of said disks to one another and which extends at a right angle to said disks,

said cutter units being positioned such that said shafts are substantially horizontally disposed in parallel to each other, and that said plurality of disks of said first cutter unit are fitted in the gaps between adjacent disks of said second cutter unit,

said bone mill further comprising a drive force transmission mechanism for mutually inwardly rotating said shaft of said first cutter unit and said shaft of said second cutter unit such that a bone to be crushed is taken in between said blades formed on said disks of said first cutter unit and said blades formed on said disks of said second cutter unit.

2. A bone mill according to Claim 1, wherein each of said cutter units is arranged such that said plurality of

disks and said shaft are made in a unitary structure.

3. A bone mill according to Claim 1, wherein

each disk has a rake portion cut, in the form of an arcuate concave, in the disk center direction from the disk peripheral surface, and

said blade is formed by that ridgeline in the disk thickness direction which is formed by the disk peripheral surface and the end of said rake portion cut in the disk center direction.

4. A bone mill according to Claim 3, wherein each disk has a plurality of blades at regular angular intervals.

5. A bone mill according to Claim 1, wherein

each cutter unit has small-diameter disks and large-diameter disks,

each large-diameter disk has a blade arranged to draw a large rotational locus, and

each small-diameter disk has a blade arranged to draw a small rotational locus.

6. A bone mill according to Claim 5, wherein each large-diameter disk is thicker in thickness than each small-diameter disk.

7. A bone mill according to Claim 1, wherein the blades of adjacent disks of each cutter unit are formed at positions angularly shifted from each other in the rotational direction.

8. A bone mill according to Claim 1, wherein said drive force transmission mechanism is arranged to transmit a drive force such that said shaft of said first cutter unit and said shaft of said second cutter unit are rotated at different rotational speeds.

9. A bone mill according to Claim 1, further comprising a case which houses said first cutter unit and said second cutter unit,

said case comprising a pair of support walls which rotatably support both ends of said shafts of said cutter units, and a pair of lateral walls which are parallel to said shafts of said cutter units and which close the spaces between said support walls,

said first cutter unit and said second cutter unit being defined by said pair of support wall and said pair of lateral walls.

10. A bone mill according to Claim 9, wherein said

lateral walls are removable from said support walls.

11. A bone mill according to Claim 10, wherein each lateral wall has a duster which projects inwardly so as to be fitted in the gaps between adjacent disks of the cutter unit which said duster faces.

12. A bone mill according to Claim 11, wherein each duster is made substantially in the form of an equilateral triangle when viewed along the corresponding lateral wall, said equilateral triangle having (i) an upper side extending as inclined downwardly from an upper portion of the inner surface of said lateral wall, (ii) a lower side extending as inclined upwardly from a lower portion of said inner surface of said lateral wall, and (iii) the vertex made in the form of an arcuate concave along the shaft of the cutter unit which said duster faces.

13. A bone mill according to Claim 12, wherein the duster and the lateral wall for each cutter unit are made in a unitary structure.

14. A bone mill according to Claim 9, wherein said pair of support walls support said cutter units such that no gaps are substantially produced between the inner surfaces

of said support walls and the outside lateral surfaces of the end disks of said cutter units.

15. A bone mill according to Claim 9, wherein said case is opened at its top and is arranged to be capable of supplying a bone to be crushed to said cutter units,

said case having a removable lid which covers the top of said case.

16. A bone mill according to Claim 15, wherein said case is provided at a lower portion thereof with a placing face on which there is slidably placed a container arranged to receive bone particles which fall down after a bone has been crushed while passing between said first and second cutter units.

17. A bone mill according to Claim 16, wherein said container comprises a deep main container and a receiving member which receives said main container.

18. A bone mill according to Claim 17, wherein said placing face has a gentle ascent in the container pulling direction.

19. A bone mill according to Claim 15, wherein said drive force transmission mechanism comprises:

a rotational force input shaft to which a drive force is externally given; and

a reduction gear mechanism connected to said input shaft,

an output of said reduction gear mechanism being given to both said shaft of said first cutter unit and said shaft of said second cutter unit.

20. A bone mill according to Claim 19, wherein said drive force transmission mechanism is housed in a gearbox connected to said case which houses said cutter units.

21. A bone mill according to Claim 20, wherein said drive force transmission mechanism has a lock mechanism arranged to prevent a drive force from being transmitted to said shafts of said cutter units.

22. A bone mill according to Claim 21, further comprising a link arranged to release the lock of said lock mechanism when said lid is put on the top of said case.

23. A bone mill according to Claim 22, wherein said lock mechanism is arranged to prevent said drive force

transmission mechanism from mutually inwardly rotating said shafts and to allow said drive force transmission mechanism to mutually outwardly rotate said shafts.

24. A bone crushing method using:

a first cutter unit comprising a plurality of disks disposed in parallel to one another at regular intervals, each disk being provided on the periphery thereof with a blade; and

a second cutter unit comprising a plurality of disks fitted in the gaps between adjacent disks of said first cutter unit, each disk being provided on the periphery thereof with a blade,

with said disks of said first cutter unit and said disks of said second cutter unit mutually inwardly rotated, a bone to be crushed being put between said disks under rotation, thus crushing said bone.

Add A1